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WOMEN PERCEPTIONS OF 'MASCULINE' TECHNICAL CAREERS: A COMPARATIVE STUDY OF WOMEN IN 'FEMININE' AND 'MASCULINE' EMPLOYMENT OCCUPATIONS IN THE CITY OF GWERU, ZIMBABWE.

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Abstract

Female under-representation in science and technology is found in societies the world over. This study investigated and compared the perceptions of 120 Zimbabwean women in non-technical and technical occupations, focussing on those jobs usually dominated by males. A survey, based on a closed- and open-ended questionnaire was employed to gather both quantifiable and qualitative data on non-technical and technical women's career aspirations, job satisfaction and perceptions towards females in 'masculine' technical jobs. The main findings of the study were that: education and public opinion appeared to limit women's career choices to non-technical jobs; women in non-technical jobs started employment with higher job satisfaction than those in technical jobs, but this reversed with time due to work experiences; and women exposed to females occupying ('masculine') technical positions were more positive to females in such technical jobs than those exposed to purely 'feminine' or 'masculine' work environments. In view of these findings, recommendations are made for gender sensitive interventions involving education, employers and the public.

Introduction

Women, the world over, are generally disadvantaged in terms of access to, and opportunity in, science and technology related careers. Sexual division of labour is one aspect of education which tracks girls and women into the arts, humanities and home economics, and boys and men into mathematics, sciences and engineering related subjects (Measor & Sikes, 1992; Hill & King, 1993; Kane, 1995). The differentiation of female and male social roles is constructed through socialisation agents like the family, peer group, media and education. In Zimbabwe, studies by UNESCO (1995), Chivore (1992), Dorsey (1989), Mandebvu (1991) and Gordon (1995) revealed gender inequalities in access to, and achievement in, mathematics, science and technical education, especially at secondary schools and tertiary levels. Like findings from elsewhere (Abagi, 1998; Alausa 2001; Dennis, 1991; Opare, 1996), Zimbabwean girls and women were found to be under-represented and under-achieving in the scientific and technology related subjects.

Literature Review

Through socialisation, there is internalisation of female values by girls, which limit women's occupational aspirations and choices to service provision because most societies define technical skills and jobs as 'masculine', while domestic, secretarial and clerical occupations are viewed and labelled as 'feminine' (Levy, 1972; Beechey, 1978; Wolpe, 1978; Mackintosh, 1981). Levy (1972: 13) observes that "certain activities such as cooking and sewing are encouraged primarily for girls and other activities such as woodwork and mechanical work are encouraged primarily for boys." To this effect, education is assigned the role of ensuring male and female differential access to, and performance in, those areas of study correlated with technical careers in the productive sector. The school is viewed as an agent of reproducing rather than challenging gender inequalities, and Sarup (1982: 83) maintains that "there is sex differentiation at the level of the institution and at the level of the curriculum." Since education is a prerequisite human right for women emancipation (Bryson, 1992; Levy, 1972; Kane, 1995), gender imbalances in education may be one key reason for women under-representation in technical forms of employment.

Another view by radical feminists (Bryson, 1992) rejects the claim that women's access to, and attainment in, science and technical education is a sufficient intervention measure for redressing gender inequalities in role selection and allocation. Rather, it is the eradication of the patriarchal nature of society which is of necessity because:

Even if girls and young women were to get the necessary qualifications, which would give them access to a wider range of occupations, this would in no way guarantee their entry to these occupations (Wolpe, 1978: 326).

The basis for women subordination in the employment sector is differential power relations between men and women because, according to Kane (1995: 79) "even highly educated women remain subordinated within the system of gender stratification."

A further argument by socialist feminists views capitalism and patriarchy as working hand-in-hand to devalue female skills for the legitimisation of female exploitation by men (Eisenstein, 1979a; Trebilcock, 1982; Eisenstein, 1979b). Capitalist patriarchy

(Eisenstein, 1979a; Eisenstein, 1979b) is viewed as the domestication of female skills that leave men dominating the productive sector and technical employment.

These theoretical arguments indicate that the search for answers to women's under-representation in high socio-economic positions should have a multi sectoral approach. In Zimbabwe, observations have been made that women are more concentrated in non-technical careers (Batezat and Mwalo, 1989; Bennell *et al* 1991; Selassie, 1986). Selassie (1986: 105) observes that, "Banking and insurance offer the highest employment opportunities for females in Zimbabwe", while Bennell *et al* (1991: 85) add that, "The male domination of mechanical engineering occupations in Zimbabwe is also striking."

It was, therefore, a major objective of this study to investigate and reveal the views and attitudes of women towards those technical careers usually dominated by men. This should give an insight into the applicability of the discussed theoretical views to the persistent gender inequalities to the employment sector in Zimbabwe.

Objectives of the Study

Although theoretical arguments point to the existence of gender disparities in societies the world over, the nature of gender socialisation and role allocation vary from society to society. It was, therefore, the major objective of this study to identify how women in Zimbabwe perceived technical jobs that are usually defined as 'masculine'. In particular, it aimed to investigate and identify social factors that may,

1. act as barriers to women's access to technical careers,
2. influence women's career choices and job satisfaction, and
3. shape women's perceptions towards jobs that are usually dominated by men.

Methodology

Research Design

In order to gather the opinions of many females in the city of Gweru's various employment sectors, a survey research design was selected for this study because it enables a wide range of data to be accessed on the topic (Gay, 1982; Hurghees, 1980). The views of 120 female technocrats in various non-technical and technical occupations and from different economic sectors in the city of Gweru were,

or undecided form of responses was not used in order to give clarity and direction when making an analysis. All the items on the questionnaire categorised the responses into non-technical and technical in order to identify any similar or different patterns in the participants' views towards 'masculine' occupations.

Data Gathering Procedure

All the 120 questionnaires were personally delivered to, and collected from, the respondents. This ensured a 100% questionnaire return yield. Before the distribution of the questionnaire, permission was sought from management at each of the participants' employment organisation and the rationale behind the survey was explained to allay any suspicions.

To ensure validity, reliability and utility of the questionnaire items (Oppenheim, 1992), all the technical terms were first explained and clarified to the participants. For example, an explanation of differences between non-technical ('feminine') and technical ('masculine') jobs in the context of this study and at each research site was undertaken before the participants responded to the questionnaire. After this, each respondent was able to classify her employment position as either non-technical or technical, and thus became adequately focussed to the objectives of the study.

Research Findings and Discussion

Women's Job Satisfaction in 'Feminine' and 'Masculine' Careers

In order to determine the participants' job satisfaction, they were asked to indicate whether their current jobs were their original career choices or not (Table 1), and to state the type of jobs that were in their initial career plans (Table 2). The participants were further asked to indicate whether they would change from their current jobs if they get an opportunity to do so (Table 3). For each question, the women explained their answers and a comparative analysis of the responses of women in 'feminine' (non-technical) and 'masculine' (technical) occupations was undertaken.

therefore, gathered using a questionnaire with both closed- and open-ended questions (see Appendix 1).

The Sample and Sampling Procedure

A sample of 120 female respondents was drawn from a population of post-secondary trained technocrats in the city of Gweru's major employment sectors. This included manufacturing, construction, tourism, transport, mining, commercial, banking, health and education employment sectors.

Two categories of female employees were involved in the study: 60 were employed in non-technical or 'feminine' positions, while the other 60 were in technical jobs usually dominated by men ('masculine') in most occupational hierarchical structures. In line with the objectives of the study and in order to ensure an equitable representation of the targeted population, purposive and stratified sampling methods (Williamson *et al.*, 1982) were employed to select the 120 respondents so as to capture views of women from diverse employment situations. Thus, out of the 60 non-technical women, 30 operated in purely 'feminine' work environments, while the other 30 were exposed to women performing technical jobs alongside their male counterparts. All the 60 technical women worked in dominantly male environments, but were also exposed to women in 'feminine' positions.

The Research Instrument

A questionnaire with both closed- and open-ended questions, which obtained both quantifiable and qualitative data (Oppenheim, 1992; Patton, 1990) was the data-gathering instrument used for the study (see Appendix 1). Quantifiable data were on the frequency (f) of responding to a given question by the respondents (N=120), while qualitative data were explanations to given responses by the participants, some of which were quoted directly.

The questionnaire had two sections. The first section asked the respondents to provide information on their career aspirations before and after job training or employment in order to infer on factors that influenced their career choices and job satisfaction. The second section categorised participants' responses onto a Likert Scale, using Strongly Agree (SA) and Agree (A) as the positive responses, and Disagree (DA) and Strongly Disagree (SDA) as the negative responses. The neutral

Research Question 1(a): Is your present job your first career choice?**Table 1: Female Employees' Initial Career Plans**

Employee category	Yes (f)	%	No (f)	%
Non-technical participants (n=60)	39	65	21	35
Technical participants (n=60)	23	38.3	37	61.7
Totals (N=120)	62	51.7	58	48.3

Table 1 shows that although more women (51.7%) had got jobs that were in line with their original career plans, this is not significantly different from those who changed from their original career plans (48.3%). However, the table reveals that more women in 'feminine' (non-technical) jobs (65%) than in 'masculine' (technical) jobs (38.3%) had sought to join their current employment positions before employment. On the contrary, more women in 'masculine' occupations (61.7%) compared to those in 'feminine' jobs (35%) had no original career plans that were in line with the usually male dominated technical jobs they occupied.

These results show that fewer of the technical women (38.3%) who participated in this study originally favoured careers that are usually male dominated. They also imply that fewer women in such 'masculine' occupations might have started their careers with high job satisfaction compared to those in 'feminine' occupations (65%). Thus, it may be concluded from this study that women in the so-called 'feminine' jobs might have started their careers with higher job satisfaction than those in male dominated careers.

Research Question 1(b): What job was in your first career plan? Give reasons for your answer

According to Table 2, most of the women (95 or 79.2%) from the whole sample had original career choices that were purely non-technical compared to only 25 or 20.8%, who had technical career plans upon leaving school. This is quite a significant difference, which may indicate that women's career choices are limited to service provision like secretarial, clerical, receptionists, teaching, nursing and banking as opposed to industrial careers that are technically biased. The table further reveals that of the 25 or 20.8% respondents who had technically biased original career plans,

more of these (14 or 11.6%) had 'feminine' technical careers like dressmaking, fashion designing, and beauty therapy in their minds, while 11 or 9.2% initially sought to join the usually male dominated technical jobs like electrical and mechanical engineering, boiler-making, surveying, wood technology, and metal working. This observation from the study tallies with earlier studies that women in Zimbabwe are not adequately exposed to employment positions in the manufacturing sector (Batezat & Mwalo, 1983; Selassie, 1986; Benell *et al*, 1991).

Table 2: Women' Initial Career Plans by Type of Job

	Non-technical participants		Technical participants		Totals (N=120)	
	(f) n=60	%	(f) n=60	%	f	%
Initial job type						
Secretarial, Clerical	13	21.7	8	13.3	21	17.5
Receptionist, Hospitality	9	15	7	11.7	16	13.3
Teaching, Nursing	18	30	15	25	33	27.5
Commercial, Banking, Accounts	12	20	13	21.7	25	20.8
Non-Technical Career Plans	52	86.7	43	71.7	95	79.2
'Feminine' technical	5	8.3	9	15	14	11.6
'Masculine' technical	3	5	8	13.3	11	9.2
Total technical careers plans	8	13.3	17	28.3	25	20.8

The most common explanations for the non-technical career aspirations by most of the respondents (79.2%) were:

- *At academic level, I didn't do other technical subjects except fashion and fabrics. I always aimed for a white-collar job.*
- *I am not technically-minded. I didn't study that at school. I have always been into commercials.*
- *It was by accident that I became an auto-electrician because my father trained me. I didn't learn this at college.*

These comments reveal that some of the women failed to penetrate into technical jobs that are viewed as 'masculine' due to the nurturing process in the education system. By inference, the lack of interest in technical careers by most women in this

study could be related to gender stereotyping of the Zimbabwe curriculum that tracks women into commercial, arts, secretarial and clerical related subjects (Chivore, 1992; Mandebvu, 1991; Gordon, 1995), which has some limitations on women's career aspirations as shown by this study. Thus, the negative attitudes towards technical careers by female participants in this study could largely be a product of the education system, which categorises and distributes knowledge along gender lines. The view that there is gender inequality on the level of the curriculum in favour of boys and men (Sarup, 1982) is quite applicable to the underlying causes of the under-representation of women in technical employment occupations that was observed in this study.

Research Question 2: If given an opportunity, would you change from your present job? Explain your answer

Table 3: 'Feminine' and 'Masculine' Job Occupants Future Career Plans

Participants	Yes (f)	%	No (f)	%
Non/technical(n=60)	13	21.7	47	78.3
Technical (n=60)	6	10	54	90
Total (N=120)	19	15.8	101	84.2

According to Table 3, fewer of the respondents (15.8%) planned to leave their current occupations, while the majority (84.2%) were happy to continue. This shows a general high job satisfaction for both women in 'feminine' and 'masculine' occupations.

Comparatively, the gathered data in Table 3 reveals that more women in 'feminine' (non-technical) jobs (21.7%) planned to change their careers, compared to only 10% in 'masculine' (technical) occupations. The finding implies a higher job satisfaction among the women in 'masculine' jobs (90%), than those in 'feminine' jobs (78.3%). This raises an important observation that although fewer women sought to enter into the so-called 'masculine' careers (Table 2), once exposed to such jobs, the women developed positive attitudes towards their jobs. Thus, the negative attitudes which women held towards male dominated technical careers were socially constructed and could also be socially deconstructed through interaction as revealed

by the reasons stated for either planning to leave or to stay on by most of the respondents.

Some of the 'technical' women who had no plans to leave their current jobs said:

- *I enjoy operating machines with men. They don't challenge me because they know I can do my job.*
- *The job gives me a chance to prove that all people, whether men or women, are capable. I do what men are doing here.*
- *I am the most highly trained here. Even men ask for help and some work under me. I have proved it and I want other women to learn from me.*

These views are some evidence that females in the employment sector usually dominated by males can develop positive attitudes towards their occupations due to the acquired capability and confidence in carrying out their job tasks. The underlying factor, as observed from these sentiments is the exposure to technical skills for all people, irrespective of one's gender. The views also imply that job satisfaction and job performance could be related variables, i.e. the better the job performance, the higher the job satisfaction, and vice versa.

On the other hand, the few 'technical' women who expressed a desire to change their careers gave reasons that showed that it was also mainly due to experiences as some of them said:

- *I am the only woman in the workshop.*
- *I feel very lonely.*
- *I am the only odd one; most women here are in the offices. I have no company.*
- *I have to be away from home at odd hours due to stand-bys.*
- *I would rather do contract jobs in order to have more time with my family.*

While most of the reasons for either planning to stay or leave their current jobs by 'technical' women focussed on their work experiences, 'non-technical' women's reasons for remaining in or changing their careers mostly hinged on better working conditions, especially remuneration, as illustrated by their most common explanations:

- *I have nothing to complain about my work conditions.*
- *The job is not stressful.*
- *I get paid more than most women here and even some men. So I am OK.*

- *Yes I need to advance myself in the career because I will be promoted. Otherwise I am OK here.*

Thus, while the 'technical' women who wanted to stay on were motivated by the desire to meet the challenges of proving their abilities in male dominated work environments, the main pull factors for the 'non-technical' women were 'unstressful' job tasks and satisfying wage packages. By inference, the views of most participants in this study indicated that women in 'masculine' jobs defined a good job in terms of the skill challenges it provided, while those in 'feminine' occupations defined a good job in terms of its monetary returns, especially if the remuneration surpassed male earnings.

Research Question 3: What are the 'non-technical and technical women's attitudes towards females in 'masculine' technical careers?

Table 4: 'Non-technical and technical women's' attitudes towards women in ('masculine') technical occupations

Item	Statement	Respondents	Positive Responses				Negative Responses			
			SA	%	A	%	DA	%	SDA	%
3.1	Most women themselves dislike technical jobs (N=120)	Non-technical (n=60)	18	30	19	31.7	14	23.3	9	15
		Technical (n=60)	15	25	18	30	15	25	12	20
3.2	Most people don't expect women to work in technical jobs (N=120)	Non-technical (n=60)	19	31.7	21	35	16	26.7	4	6.6
		Technical (n=60)	19	31.7	20	33.3	12	20	9	15
3.3	Women are less suitable than men for technical jobs (N=120)	Non-technical (n=60)	17	28.3	16	26.7	18	30	9	15
		Technical (n=60)	17	28.3	16	26.7	18	30	9	15
3.4	Women in technical jobs are less capable than their counterparts (N=120)	Non-technical (n=60)	11	18.3	23	38.4	15	25	11	18.3
		Technical (n=60)	6	10	3	5	10	16.7	41	68.3

Table 4 shows higher positive responses to items 3.1 and 3.2 for non-technical (61.7% and 66.7%) and technical (55% and 65%) respondents who participated in the study. Most women in this study, therefore, believed that there was low interest in technical careers among women in general (item 3.1). This finding agrees with data from Table 2, that few women had initial career aspirations that were related to technical jobs, especially those that are traditionally perceived to be 'masculine'.

Earlier studies by Dorsey (1989), Mandebvu (1991), Gordon (1995), and Chivore (1992) indicated that due to the engendered Zimbabwean school curriculum, most girls and women were tracked into service delivery forms of employment. The results of this study indicate that although gender equality in both education and the employment sectors has been much talked about and advocated for in post-colonial Zimbabwe, not much has been achieved in improving women's access to, and deconstructing their negative attitudes towards, technical education and related careers.

It is further revealed from the table (item 3.2) that most of non-technical (66.7%) and technical (65%) women regarded public opinion as opposed to women taking up technical careers. The women's job type seemed to have no influence on their perceptions; as there were similar perceptions towards the public with regards to women in technical occupations by both the non-technical and technical participants. Such perceived negative attitudes by the public towards women in technical ('masculine') jobs could negatively affect women's penetration into such jobs.

With regards to participants' perceptions of women's suitability and capability in technical jobs, Table 4 (items 3.3. and 3.4) shows that there were differences between the 'non-technical and technical women's views. While more of the non-technical women (55%) viewed women as less suitable than men to take up technical jobs, more of the women employed in technical jobs (56.7%) disagreed with this view. In other words, according to most of the women in 'masculine' careers, one's sex (physiology) should not have any bearing on his/her suitability for a given career. By inference, this perception could be a result of the women's experiences and confidence in performing their job tasks, which might have resulted in them realising equality with their male counterparts.

On the issue of women capability in technical jobs (item 3.4), there was a striking difference in the number of positive and negative responses between 'non-technical and technical women' who participated in the study: Most of the 'non-technical women' (57%) believed that women in technical jobs are less capable than their male counterparts. Contrary to this view, 85% of the technical women expressed that women can be equally competent as men in technical jobs. It was interesting to note that the 15 % 'non-technical women', who opposed the assertion that women are less capable than men in technical jobs were exposed to work environments, where

they saw women performing technical jobs alongside men. By inference, therefore, it could be concluded from this study that there could be a difference in perception towards technical jobs between 'non-technical women' exposed to females working in male dominated careers and those exposed to purely male or female work environments. The underlying factor seems to be one's exposure to female role models in 'masculine' (technical) careers as illustrated by the following sentiments from some of the respondents:

- *Some people think that people like me, who are in jobs which are traditionally for men, are gender-benders. But I have proved that I can do whatever men can do [Electrician].*
- *Women like to be smart and beautiful. We like office work, but not industries, where one has to put overalls and safety shoes like men [Receptionist].*
- *It's not one's sex that matters to do when doing a job. If a man has no brains or skills, he can be worse than a woman. I have seen some women here who do much better jobs than men as auto-electricians [Secretary].*
- *I have not come across any female boiler maker in this company. It means women cannot do such jobs which are only suitable for men [Receptionist].*

Summary of Findings

This study investigated, compared and contrasted the perceptions of 120 women in 'feminine' and 'masculine' employment occupations towards technical jobs that are usually dominated by men. The objective of the study was to reveal factors that influenced these two categories of employed women's career choices, job satisfaction and perceptions towards women in 'masculine' technical jobs. The following were the major findings of the study:

Most women's initial career plans were limited to 'feminine' jobs in the commercial, banking, education, health, secretarial and service provision, than the technical sphere, which is traditionally perceived to be a male domain (Table 2). The major factor found to be responsible for this marginalisation of most women into 'feminine' occupations was a gender stereotyped school curriculum, which tracked women into certain careers and excluded them from others. Schools thus 'feminised' and 'masculinised' occupations in the employment sector through their categorisation of knowledge along gender lines.

The study revealed some difference in job satisfaction between women in 'feminine' jobs and those in 'masculine' jobs. Women in 'feminine' jobs started their careers with higher job satisfaction than those in 'masculine' occupations (Tables 1 and 2). However, as women in 'masculine' occupations became settled into their careers, they gained more job satisfaction than those in 'feminine' occupations (Table 3). Whereas most female technical participants' job satisfaction originated from their positive job performance, most of those in 'feminine' occupations were found to be motivated by 'unstressful' work conditions and good remuneration.

According to the study, most women in non-technical ('feminine') and technical ('masculine') jobs held similar views on the public's opinions towards women's career choices (Table 4, items 3.1 and 3.2). Most of them believed that the public, in general, were against women taking up technical jobs and that most women shunned technical careers in preference for service provision type of jobs.

With regards to women suitability for, and capability in, technical jobs, the study revealed that there were significant differences in opinions between the 'non-technical and technical' participants (Table 4, items 3.3 and 3.4). Most of the 'non-technical women' viewed women as less suitable and less capable than men in technical jobs, while most of the 'technical women' opposed this view. It was further established that women's exposure to work environments, where men and women performed technical job tasks on equal basis, influenced their positive perceptions towards the so-called 'masculine' jobs. Those women familiar with females in 'masculine' jobs developed positive attitudes towards technical jobs usually dominated by men, and vice versa.

Conclusion

Generally, findings of this study indicate that women's career choices, job satisfaction and attitudes towards 'feminine' or 'masculine' employment occupations were socially constructed during interaction. Therefore, the negative attitudes, which some women held towards 'masculine' occupations, could also be socially deconstructed.

Recommendations

Results of this study revealed that most women in 'feminine' occupations harboured negative perceptions towards technical jobs. There is, therefore, a need for some interventions measures aimed at:

- (a) promoting women's access to, and cultivating interest in, science, mathematics and technical subjects at all levels of education,
- (b) raising women's awareness of their potential and career opportunities in technical fields that are usually dominated by men, and
- (c) deconstructing the public's negative attitudes towards women in technical careers.

To this effect, the following intervention strategies are suggested:

1. Primary, secondary and tertiary institutions should popularise and encourage the learning of mathematics, science and technical subjects like metalwork, building, woodwork, technical graphics, etc, which are usually the preserve of males.
2. Women in science and technical education as well as in industry, like teachers, lecturers and artisans should be highlighted through the media and at science and technology exhibitions as role models for the young female generation to imitate and for raising employers' and the general public's consciousness on women's technological potential.

This calls for a multi sectoral approach, requiring education, labour and employment sectors' sensitivity to the existing gender imbalances in science and technology.

References

- Alausa, Y.A. (2001). Gender differences in the Namibian students' perceptions of their mathematics classroom environment. *Zimbabwe Journal of Educational Research*, 13(1), 22-37.
- Abagi, O. (1998, July 12-17). Engendering school curriculum for social transformation: Research policy and practice from Kenya's experience (pp. 2-15). In *a Paper Prepared for the World Congress of Comparative Education Societies*. Cape Town.

- Batezat, E., & Mwalo, M. (1989). *Women in Zimbabwe*. Harare: SAPES Trust.
- Beechey, V. (1978). Women and production: A critical analysis of some sociological theories of women's work. In A. Kuhn & A. Wolpe (Eds.). *Feminism and Materialism. Women and Modes of Production*. London. Routledge & Kegan Paul.
- Bennell, P., Katsidzirira, D., & Madziya, F. (1999). Skilled labour market in Zimbabwe: A case study of mechanical engineering personnel. *Zimbabwe Journal of Educational Research*, 3(1), 76-105.
- Borg, W. R., & Gall, M.D. (1989). *Educational Research*. New York: Longman.
- Bryson, V. (1992). *Feminist Political Theory*. Basingstroke: MacMillan Press.
- Chivore, B.R.S. (1992). Technical education in post-independent Zimbabwe. *Zimbabwe Journal of Educational Research*, 4(1), 71-81.
- Cohen, L., & Manion, L. (1994). *Research Methods in Education*. London: Routledge & Kegan Paul.
- Dennis, C. (1992). The limits to women's independent careers: Gender in the formal and informal sectors in Nigeria. In D. Elson (Ed.). *Male Bias in the Development Process* (pp. 83-103). Manchester: Manchester University Press.
- Dorsey, B.J. (1989). Socialisation, gender, academic achievement and aspirations of secondary school pupils in Zimbabwe. *Human Resources Research Centre, Occasional Paper 3*.
- Eisenstein, Z.R. (1979a). Some notes on the relations of capitalist patriarchy. In Z.R. Eisenstein (Ed.). *Capitalist Patriarchy and the Case of Socialist Feminism* (pp. 41-55). New York: Monthly Review Press.
- Eisestein, Z.R. (1979b). Developing a theory of capitalist patriarchy and socialist feminism. In Z.R. Eisenstein (Ed.). *Capitalist Patriarchy and the Case of Socialist Feminism* (pp. 5-39). New York: Monthly Review Press.

- Gay, L. R. (1982). *Educational Research: Competence for Analysis and Application*. New York: Macmillan.
- Gordon, R. (1995). *Attitudes Towards Girls in Zimbabwe: A Baseline Study for Gender Equity in Education Project*. Harare: UNICEF.
- Hill, M.A. & King, E.M. (1993). *Women's Education in Developing Countries: Barriers, Benefits and Policies*. Baltimore: Hopkins University Press.
- Hurghes, J. (1980). *The Philosophy of Social Research*. London: Longman.
- Kane, E.W. (1995). Education and beliefs about gender equity. *Social Problems*, 4(1), 75-87.
- Levy, B. (1972). The schools role in the sex role stereotyping of girls: A feminist review of literature. *Feminist Studies*, 1, 5-19.
- Mackintosh, M. (1981). Gender and economics: The sexual division of labour and subordination of women. In Young, K. *et al* (Eds.). *Of Marriage and the Market: Women's Subordination in International Perspectives* (pp. 1-15). London: CSE Books.
- Mandebvu, O.S. (1991). Pupils' attitudes towards technical/vocational subjects: An exploratory study. *Zimbabwe Journal of Educational Research*, 3(2), 163-183.
- Measor, L., & Sikes, P.J. (1992). *Introduction to Education: Gender and Schools*. London: Cassell Publishers.
- Opare, J. A. (1996). Boys and girls in science: Does the gender composition in school matter? *Zimbabwe Journal of Educational Research*, 8(1), 727-745.
- Oppenheim, A.N. (1992). *Questionnaire Design, Interview and Attitude Measurement*. New York: Prentice-Hall.
- Patton, M.Q. (1990). *Qualitative Evaluation and Research Methods*. California: Sage Publishers.
- Sarup, M. (1982). *Education, State and Crisis*, London: Routledge & Kegan Paul.

- Selassie, S.G. (1986). Patterns of women's employment in Africa. In E.M. Kane (Ed.). *The Challenges of Employment and Basic Needs in Africa* (pp. 95-111). Oxford: Oxford University Press.
- Trebilcot, J. (1982). Sex roles: The argument from nature. In M. Vertterling-Braggin (Ed.). *Femininity, Masculinity and Androgyny* (pp. 40-48). New York: Littlefield Adams and Company.
- UNESCO. (1995). *Zimbabwe National Examinations Achievement Tracking*. Harare: UNESCO.
- Williamson, J. B., Karp, D. A., Dalphin, J. R., & Gays, P. S. (1982). *Research Craft: An Introduction to Social Research Methods*. Boston: Little Brown & Company.
- Wolpe, A. (1978). Education and the sexual division of labour. In A. Kuhn & A. Wolpe (Eds.). *Feminism and Materialism: Women and Models of Production* (pp. 291-328). London: Routledge & Kegan Paul.



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